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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/883,394	06/19/2001	Nobuko Imajo	960587A	1989
23850	7590	11/17/2003	EXAMINER	
ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP			CELSA, BENNETT M	
1725 K STREET, NW			ART UNIT	
SUITE 1000			PAPER NUMBER	
WASHINGTON, DC 20006			1639	

DATE MAILED: 11/17/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

file copy

Office Action Summary

Application No.

09/883,394

Applicant(s)

IMAJO ET AL.

Examiner

Bennett Celsa

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 22-36 is/are pending in the application.
- 4a) Of the above claim(s) 1-6, 8, 10-13, 22-24, 27-32 and 36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 7, 9, 25, 26 and 33-35 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Status of the Claims

Claims 1-13 and 22-36 are currently pending.

Claims 1-6, 8, 10-13, 22-24, 27-32 and 36 withdrawn from consideration as being directed to a nonelected invention.

Claims 7, 9, 25-26 and 33-35 are under consideration.

Election/Restriction

1. Applicant's election with traverse of Group II (claims 6-13 and 25-36) in Paper No. 7 is acknowledged. The traversal is on the ground(s) that "[T]he polypeptides of Groups I and II include the same amino acid residue derived from a strong acid residue" and therefore "that no additional search burden is imposed by the examination of Groups I and II at the same time". This is not found persuasive for the reasons provided in pages 2-3 of the restriction/election of species e.g. separate classification and divergent bibliographic searches leading to burdensome manual/computer searches in patent and literature areas.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 1-5 and 22-23 are withdrawn from further consideration pursuant to 37 CFR

1.142(b) as being drawn to a nonelected invention.

3. Applicant's election of 4-maleimidobutyryl-Ala-[Tyr(PO₃H₂)]₅-beta Ala (seq. Id. No. 18, which assertedly reads on claims 6-13 and 25-36 in Paper No. 7 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

4. It is noted that the elected species reads on claims 7-9, 13, 25-26 and 33-36 BUT not:

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- a. claim 10 and 11 which are NOT generic to the elected species;
- b. claims 8, 13 and 36 require additional structure of an affinity agent;
- c. claim 6 (and claims 12, 27-32 dependent thereon) which are drawn to conjugates of a polypeptide and an analyte affinity substance do NOT require the presence of a maleimide and linker attached to the N-terminus.

5. Accordingly, claims 6, 8, 10, 11, 13, 27-32 and 36 are additionally withdrawn from consideration as being directed to a nonelected invention (e.g. not encompassed by the elected species).

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 7, 9, 25-26 and 33-35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. In claim 7 (and claims dependent thereon) the term "strong acid (residue)" is a relative term which renders the claim indefinite. The term "strong acid " is not defined by the claim, nor does the specification provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

C. In claims 7 (and claims dependent thereon) use of the phrases "polypeptide having 3 to 30 amino acids *derived from* a strong acid" and "R" variables defined as amino acid residue *introducing* a strong acid residue ... via a reactive group" are indefinite:

as being confusing as to whether a method or a compound is being claimed;
as being incomplete as to the method steps required to derive/introduce a strong acid;
as lacking metes and bounds as to what "strong acids" are within the claimed scope and what is the resulting amino acid structure. For example HF is a (very) "strong" acid whose strength can etch glass; which would (completely?) degrade an amino acid. Is HF within the claimed scope?

Claim Rejections - 35 USC § 102

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

8. Claims 7, 9, 26 and 33-35 are rejected under 35 U.S.C. 102(e) as being anticipated by Kline et al. US Pat. No. 5,459,078 (10/95: filed 5/91 or earlier).

Kline et al. disclose and claim the use of "charged substances" conjugated through the use of a spacer and linker (e.g. a heterobifunctional linker) including maleimide derivatives in which the "charged substances" comprise "polyamino acids" (e.g. peptides) comprising 4 or more Glu/Asp residue containing acidic sidechains which

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can be linked to an analyte compound (e.g. an antibody). See e.g. columns 10-16 and the patent claims. Product by process limitations (e.g. derived from a strong acids e.g. phosphoric/sulfuric) are not afforded patentable weight where the reference peptide structure is encompassed within the presently claimed structure e.g. peptides having 3 or more (strong) acid residues which encompass asp/glu residues.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 7, 9, 26 and 33-35 are rejected as being anticipated under 35 U.S.C. 102 (e), or in the alternative obvious under 35 U.S.C. 103(a) over Foxwell et al. US Pat. No. 5,459,240 (10/95: effective filing date 4/87).

The presently claimed invention broadly encompasses conjugates of :
a polypeptide having 3 to 30 acid residues ("derived from a strong acid") wherein the "N terminus is bound through a spacer to a maleimido group".

Foxwell et al. teach the making of conjugates comprising heterobifunctional protein cross linking agents comprising maleimido which can be crosslinked to a phosphokinase substrate via its N-terminus (e.g. amino group) in which the substrate is:
a. Kemptide b. Foxtide 1 c. Foxtide 2 containing phosphorylatable (e.g. by ser/thr kinases) serine sidechains or a tyr containing substrate Ile-Glu-Asp-Asn-Glu-Tyr-Thr-

Ala-Arg-Gln-Gly which is phosphorylatable (e.g. by tyr kinase). See Foxwell at col. 2-6 and Examples.

The selection of Ile-**Glu-Asp**-Asn-Glu-**Tyr**-Thr-Ala-Arg-Gln-Gly from among the 4 (four peptides) Foxwell substrate peptides for N-terminal conjugation to a maleimido heterobifunctional linker and Tyr phosphorylation would be immediately envisaged (e.g. anticipated) or in the alternative prima facie obvious to one of ordinary skill in the art. See *In re Schaumann*, 572 F.2d 312, 197 USPQ 5 (CCPA 1978). The Foxwell Ile-**Glu-Asp**-Asn-Glu-**Tyr**-Thr-Ala-Arg-Gln-Gl peptide comprises Glu/Asp/phosphotyrosine which are within the scope of the presently claimed invention as constituting (strong) acid residues (e.g. acidic side chains). It is noted that product by process limitations (e.g. derived from a strong acids e.g. phosphoric/sulfuric) are not afforded patentable weight especially where the reference peptide structure is encompassed within the presently claimed structure e.g. peptides having 3 or more (strong) acid residues which encompass asp/glu residues..

11. Claims 7, 9, 26 and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foxwell et al. US Pat. No. 5,459,240 (10/95: effective filing date 4/87).

The presently claimed invention broadly encompasses conjugates of :
a polypeptide having 3 to 30 acid residues ("derived from a strong acid") wherein the "N terminus is bound through a spacer to a maleimido group".

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a. Kemptide b. Foxtide 1 c. Foxtide 2 containing phosphorylatable (e.g. by ser/thr kinases) serine sidechains or a tyr containing substrate **Ile-Glu-Asp-Asn-Glu-Tyr-Thr-Ala-Arg-Gln-Gly** which is phosphorylatable (e.g. by tyr kinase). See Foxwell at col. 2-6 and Examples.

The selection of **Ile-Glu-Asp-Asn-Glu-Tyr-Thr-Ala-Arg-Gln-Gly** from among the 4 (four peptides) Foxwell substrate peptides for N-terminal conjugation to a maleimido heterobifunctional linker and Tyr phosphorylation would be immediately envisaged (e.g. anticipated) or in the alternative prima facie obvious to one of ordinary skill in the art. See *In re Schaumann*, 572 F.2d 312, 197 USPQ 5 (CCPA 1978). The Foxwell **Ile-Glu-Asp-Asn-Glu-Tyr-Thr-Ala-Arg-Gln-Gl** peptide comprises Glu/Asp/phosphotyrosine which are within the scope of the presently claimed invention as constituting (strong) acid residues. It is noted that product by process limitations (e.g. derived from a strong acids e.g. phosphoric/sulfuric) are not afforded patentable where the reference peptide structure is encompassed within the presently claimed structure e.g. peptides having 3 or more (strong) acid residues which encompass asp/glu residues..

To the extent that the claims can be interpreted to encompass peptides containing acidic amino acids which are formed by phosphorylizing OH side chains (E.g. ser/thr tyrosine) it is noted that the reference explicitly teaches phosphorylating peptide substrates comprising ser/thr using ser/thr kinases as well as phosphorylating peptide

substrates containig tyr using tyr kinases thus rendering obvious the making of phosphorylated substrates comprising serine, threonine and tyrosine residues which are within the scope of the presently claimed invention.

Double Patenting

12. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

13. Claims 7, 9, 25-26 and 33-35 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-19 (especially claims 1,7,8,14,15 and 19 of U.S. Patent No. 6,300,079. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patent claims teach the use

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of peptide species clearly within the scope of the presently claimed invention (e.g. see claims 1, 7, 8, 14, 15 and 19.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bennett Celsa whose telephone number is 703-305-7556. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on 703-306-3217. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.

Bennett Celsa
Primary Examiner
Art Unit 1639

BC



11/14/03